1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6
Mataco SI7



C
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[372]

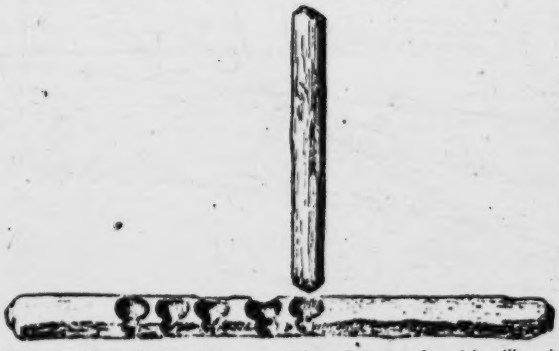

Fig. 148. Fire-drilling implement, consisting of two wooden sticks. Choroti. Gran Chaco. Bolivia. 2/3. Riksm. 03. 3. 193.

For scraping and polishing wooden objects, pieces of mussel-shell are used. Formerly, when the Choroti could not obtain iron, all woodwork was produced exclusively by means of fire and mussel-shells. In shaping a piece of wood, the parts that were to come away were burnt in the fire, and the charred parts then scraped off with a sharp-edged piece of mussel-shell.

Nordenskiöld mentions that the Choroti, in the same way as other Chaco tribes, use saws made of hard wood with which they, among other things, saw off the stem and leaves of the, to the Indians so important, caraguatá plant,[1] after having grubbed it up with a fork-like digging stick.

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[412]

Fig. 149. Stems of a liana (Asclepiadaceæ), which forms the material of which fire-drilling implements of the Choroti generally are made. Gran Chaco. Bolivia. 1/1. Riksm. 03. 3. 196.

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[412
321]
C
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[415
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M
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23]

Awls for working purposes are made of bone (fig. 147). Bone awls are also used for tattooing (see p. 75, 78), magical blood-letting (see pp. 63 and 64), and as weapons of offence (see p. 101).

Like other Chaco tribes, the Choroti produce fire by drilling. Their fire-kindling implement consists of two round-sectioned, dry sticks of wood (fig 148), usually obtained from a species of liana (of the Asclepiadaceæ), fig. 149. One stick (the female one), which is thicker, and usually longer, than the other one (the male stick), has one or more bowl-shaped indentations, at

Fig. 150. Tail of armadillo, used as a tinder box. Mataco. Gran Chaco. Argentina. Exactly similar tinder boxes are used by the Choroti. 2/3. Riksm. 03. 3. 572.

[1] Nordenskiöld (11), pp. 65 and 66, also (12), pp. 110 and 111.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

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Fig. 151. A Chofoti man producing fire by drilling. Gran Chaco. Bolivia. Photo. E. v. R.



[p. 130 is blank]

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6



the edge of which a groove has been made (see fig. 148). These indentations are of a diameter roughly corresponding to that of the male stick. 372

When about to produce fire by drilling, a Choroti first pulls the head out of one of his arrows, and fits in its place the male fire-stick into the arrow-head hole of the arrow shaft. Then he spreads on the ground a thick, dry leaf, or a piece of skin or cloth. On this underlay he places the female stick, indentations upwards. In front of one of the indentations he puts a pinch or so of tinder consisting of charred caraguatá fibres, which he takes out of a tinder box which may be the tip of a deer antler or the scaly tail skin of an armadillo, fig. 150. He then sits down on the ground, in a squatting position, gets a firm pressure with his left foot on the female stick, carefully places the male stick, that is fixed in the arrow-shaft, into one of the indentations in the other stick, and twirls the arrow-shaft vigorously between his palms (see fig. 151). He starts the twirling at the upper end of the shaft, but as he, at the same time, exercises a downward pressure, his hands by degrees slide groundwards, and therefore he has, with a lightning-quick movement, to shift his hands, now and again, to the top.

The friction between the male and the female stick grinds the wood into a fine powder, which very soon begins to smoulder, as will be noticed from the smoke then rising from the drill hole. The glowing wood powder makes its way along the groove at the edge of the hole and on to the tinder, which also soon begins to glow. Dry grass is put on top of the tinder, and this is blown on until the grass catches fire.

This method of producing fire undoubtedly sounds very laborious, but it is remarkable how quickly the Choroti are able to kindle a flame, if only the sticks, tinder and grass are thoroughly dry. Once I have seen a Choroti drill fire in 30 seconds, and on many occasions I have witnessed how South American, as well as African, natives succeeded in producing fire in less than one minute by drilling.[1]

If the weather is damp, or if the fire-kindling implements are not quite dry, it is of course fairly difficult to drill for fire. Then the best plan is to have an assistant who begins the twirling at the top end of the arrow-shaft as soon as one's own hands have slid down towards the ground. When the hands of the helper are at the low position, one starts again

[1] Cf. von Rosen (4), pp. 241–245, plate 75.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6



372 at the top, and by thus taking it by turns, the male stick is kept in continuous motion, until the wood powder begins to glow.

It is the work of the men to kindle the fire by drilling, but the women are charged with the responsibility of seeing that it does not go out unnecessarily. In order to keep cinders glowing during the night, or at other times when a flame on the hearth is not required, the women place on top of the fire dry, decayed tree stumps, which they cover with ashes, by means of which the stumps keep smouldering for a very long time. It is then easy, when required, to produce a flame by blowing [415] on, or fanning, the cinders. The fire-fan consists of feathers. Fig. 152 shows a young Choroti girl whilst carrying out her vestal duty of preserving a fire.

1: Rosen E-5 (1901-1902) 1924 SK6 Choroti SK6

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Fig. 152. A Choroti girl who has put decayed tree stumps on top of the fire in order to preserve it until again needed. Choroti. Gran Chaco. Bolivia. Photo. E. v. R.



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2: Nordenskiöld E-5 (1908-1909)1919
SK6 Choroti SK6
Ashluslay SK5



## XII.

## Fire-making Apparatuses.

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The method of obtaining fire in the Gran Chaco still consists of drilling with two rods. However, the use of matches, or flint and steel, has obtained a fairly wide spread, thanks to communication with the whites. Cow horns and the tail of the armadillo are used as tinder boxes. Caraguatá bark is used as tinder.

*Wooden fire-sticks* are widely distributed in S. America. Two kinds may be distinguished. One is so constructed that the powdered wood falls along a groove at the side of the fire-stick onto the tinder. With the other, fire is obtained by drilling through a thin piece of bamboo. In this case the drilling is usually performed with the shaft of an arrow in an arrow-head. I have observed the former kind among the Choroti, Ashluslay, Toba, Mataco, Tapiete, Chiriguano, and Huanyam. It is known almost throughout S. America with the exception of Tierra del Fuego. The latter kind I have seen among the Yuracáre, Chacobo and Guarayú.

It is of some interest to note that the Choroti and Ashluslay in making fire place the drilling-rod in the shaft of an arrow. It this way they can take quite short rods with them on their hunting excursions and other outings.[1])

[1]) See v. Rosen (1) Pl. 13.

2: Nordenskiöld E-5 (1908-1909)1919
SK6 Choroti SK6
Ashluslay



In the Chaco *fire-fans* of feathers are used. In S. America we can distinguish between a western district with feather fire-fans (Map 9) and a northern and eastern with firefans of plaited palm leaves.

I have seen feather fire-fans among the following tribes: (2) Ashluslay, (1) Choroti, (6) Mataco), (3) Tapiete, (7) Toba, (22) Yuracáre and (32) Atsahuaca,[1]); and palm-leaf fire-fans among the Cavina, Chacobo, Chané, Chimane, Chiriguano, Churápa, Guarayú (Mission) Guarayú (Pauserna), Huanyam, Itonama and Siriono.

As far as I have seen, the Aymara and Quichua do not use fire-fans specially made for this purpose. Nor do the Tierra del Fuegians. I have not found any such implements among the Cháma, either. Among the Tambopata-Guarayo, who are closely related to them or indentical with them, I only found a specimen of a small, round fire-fan plaited out of fibre, very different from the fire-fans found among other tribes[2]).

According to PATER SCHMIDT[3]), who has collected some material concerning the distribution of different kinds of fire-fans in S. America, the following tribes have feather fans: (34) Jivaro, (33) Campa, Tšantšamayo[4]) Cokama[5]) (68) Omagua and (86) Yahua. To these, besides the tribes already mentioned, I can add the (12) Mbayá[6]) and the Indians of the upper R. Marañon,[6]) and furthermore grave finds from (A) Pachacamac, Peruvian coast[7]). Fire-fans of

[1]) NORDENSKIÖLD (2), p. 30.

[2]) NORDENSKIÖLD (2), fig. 31.

[3]) p. 1083.

[4]) Not given on the map.

[5]) SÁNCHEZ LABRADOR; Vol. 1. p. 213.

[6]) OVIEDO Y VALDÉS following GASPAR DE CARVAJAL, Vol. 4, p. 550. Not given on the map, as CARVAJAL does not indicate the tribes among which he has seen these fire-fans, and I have better located references to the same district.

[7]) SQUIER, p. 91.